

Ian Shanahan (1991 / 1998)

– *In Memoriam Eric Dolphy* (20.6.1928 – 29.6.1964)

For Kathleen Gallagher:

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*Dimensiones Paradisi*

for

solo alto flute

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PROGRAMME ANNOTATION

Dimensiones Paradisi for solo alto flute

Ian Shanahan (1991/1998)

*I am the voice whose sound is manifold
and the word whose appearance is multiple.
I am the utterance of my name.*

– Thunder, Perfect Mind (Nag Hammadi Codex VI.2, 4th century AD), 14:12–15.

{Axiom: “the alto flute is a complex ecosystem, a ‘paradisaal’ cosmos unto itself ... a universe whose acoustic resources are to be ‘measured’ wisely”.}

Dimensiones Paradisi [Latin]: “measurements [dimensions] of Paradise”.

I have appropriated this rather Dante-esque sounding title from John Michell’s inspirational book **The Dimensions of Paradise: The Proportions and Symbolic Numbers of Ancient Cosmology**,* an exegetical writing on sacred geometry. It demonstrates the ancient geometrical bases – founded upon the quadrature of the circle (a symbolic melding of opposites) – which unite such diverse edifices as Stonehenge, the 12 Hides and St Mary’s Chapel of Glastonbury, Chartres Cathedral, Plato’s imaginary city of Magnesia (from **The Laws**), the Earth and Moon, and – in particular – the Celestial City (“New Jerusalem”) described by St John the Divine in **The Book of Revelation**. From their measurements, Michell evolves a complex mandala-like figure incorporating a dodecagon, several concentric circles, a hexagon, and the Star of David. This sacramental object therefore becomes the template or metaphor from which the pitch as well as the temporal data of my composition are derived, at both the macro- and micro-architectonic levels: **Dimensiones Paradisi** is, literally, that: a ‘blueprint of Paradise’ etched through vibration ... both structurally, and poetically (in terms of the nebulous, rarefied, warm, crystalline sound-world conjured up by the alto flute). Durations and lengths of sections correspond to the areas between successive shapes (moving inwards to the central point or *omphalos*), whereas the shapes’ perimeters govern pitch-gamuts (quantized to eighth tones). Thus, within each section, despite an infusion of some registrally anarchical tones, all pitches converge eventually to a single microtonal interval; these omphalic micro-intervals themselves implode towards the notional midpoint of the piece. Yet because, conceptually, the Arrow of Time ‘cuts across’ the generative symbol, there is a statistical tendency imposed upon the material of **Dimensiones Paradisi** to rise, inexorably, as if to Heaven...

Dimensiones Paradisi is dedicated to the superb Australian flautist Kathleen Gallagher: a real champion of contemporary flute music, Kathleen will deliver the work’s première performance on 26 September 1998, at the Ninth Sydney Spring International Festival of New Music. Moreover, although **Dimensiones Paradisi** originates from a different world, it is written also in memory of that intelligent musician and incomparable improviser Eric Dolphy (1928 – 1964). So – aside from feeling the greatest respect towards him – what, you may ask, is my connection with Eric Dolphy here? Answer: *deep engagement with flute physiology*. A magistral performer on alto saxophone, flute and bass clarinet, Dolphy’s creative exploration of ‘extended techniques’ was in part motivated by the researches of flautist Severino Gazzelloni. (Amongst many other things that I revere by Eric Dolphy, I remain enchanted by his album **Out to Lunch!** † – the third track, entitled **Gazzelloni**, is particularly apropos – and with Dolphy’s exquisite flute solo in the première recording of Oliver Nelson’s **Stolen Moments**.)‡

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Dimensiones Paradisi, commissioned by Laura Chislett (in 1991), was premièred by Kathleen Gallagher during the Ninth Sydney Spring International Festival of New Music, Eugene Goossens Hall, ABC Centre, Harris Street, Ultimo, Sydney, on 26 September 1998.

The composer received the **Marienberg Sydney Spring Award for Composition**, for the most outstanding original Australian composition {**Dimensiones Paradisi**} performed during the Ninth Sydney Spring International Festival of New Music (1998).

* Thames and Hudson Ltd., London, 1988; ISBN 0-500-01386-1.

† Blue Note Records, CDP 0777 7 46524 2 1; recorded on 25 February 1964.

‡ Oliver Nelson’s **Stolen Moments** (1960) was originally issued on the album **The Blues and the Abstract Truth**, Impulse! Records A-5; recorded on 23 February 1961.

PERFORMANCE NOTES

PREAMBLE

I am greatly indebted to my friend *Kathleen Gallagher* for her thorough research, for her kindness in inducting me into the subtle mysteries of the alto flute, and for her patient editorial assistance later in the compositional process – particularly in relation to the deployment of alto flute fingerings in **Dimensiones Paradisi**. I offer sincere thanks as well to *Laura Chislett Jones* (who assisted me similarly with an earlier version of this piece, for piccolo), and also to *Angela Shrimpton* (whose improvisatory noodlings with the D and D# trill-keys led me to codify the flickering sonorities of sections α_1 and α_2).

STAGE PRESENTATION (WITH THE HELP OF AN ASSISTANT), AND LIGHTING

When publicly presenting **Dimensiones Paradisi**, instead of arraying its sixteen sheets of music across a forest of music-stands (whereby an ugly and impermeable barrier is erected), the use of just two music-stands together with an assistant who will *silently and unobtrusively* pull across successive pages of music is definitely recommended. Ideally, only a small stage-area encompassing the flautist (and their sheet music) should be spotlighted, with the rest of the performance space – including the page-turner, if at all feasible – remaining in total darkness, unseen.

AMPLIFICATION OF THE ALTO FLUTE

Although the alto flute should not need to be amplified in an intimate chamber music context, some sound-reinforcement will prove necessary for adequate projection in larger concert spaces. In any event, the level of amplification ought to be kept to a minimum, so that the alto flute's natural timbre will be heard as clearly as possible: discreetly implement sound-reinforcement *only when necessary*.

TEMPORAL ORGANIZATION, AND INTERPRETATION

Dimensiones Paradisi embraces 37 sections: A, B, C, D, E, F, E', D', C', B', A', G, and H; and implanted amongst these 13 lettered sections are 24 proportionally interrelated 'interjections' α_1 to α_8 , β_1 to β_8 , and γ_1 to γ_8 – all of which are bounded by special *intercut bar-lines*. The 10 sections A to E and E' to A' are disposed symmetrically about a brief central fragment or *omphalos* (section F); sections G and H can be thought of as a 'coda'. (Note also that eight of these 10 sections themselves contain a central 'sub-*omphalos*' comprising two grace-notes!) The lettered sections are demarcated by *changes of tempo* and *ordinary bar-lines*, the latter being employed exclusively for macrostructural delineation; *dotted bar-lines* circumscribe the sub-*omphaloi*, the "pale, lunar" multiphonic subsections, and the *squared-fermata* silences (▬). Indeed, bar-lines of whatever type in themselves *never* imply any pauses, caesurae or disconnections, however ephemeral ... unless otherwise indicated.

All of the α , β , and γ sections (and section H) are notated entirely in *time-space notation*, with each 'ictus' (short, thick vertical stroke) corresponding to *one second* of elapsed time, according to the formula *40 millimetres \approx 1 second = metronome 60*. Therefore, musical events in these 25 sections should be deployed chronometrically in direct proportion to their relative horizontal placement upon the score-page: an electronic metronome flashing once per second might prove to be an effective practice tool in this

~ i ~

respect. Yet – since most durations therein are logarithmically defined – any sense of metricated rigidity is strongly discouraged! (Temporal *asymmetry* ought to be strived for.)

Aside from grace-note groups, *all* other (mensural) durations are notated spatially, in proportion, according to the abovementioned formula: *40 millimetres \approx 1 second = metronome 60*, irrespective of the prevailing metronome values! This proportionality exists purely to assist the flautist in learning the complex rhythms of **Dimensiones Paradisi**, which must be performed to a high degree of exactitude – but with *quicksilver fluidity*, not in an overtly mechanical fashion. So-called 'irrational durations' (or 'tuplets') herein may be hierarchialized into nestings of two, or even three, layers of increasingly microscopic rhythmic behaviour; they may even be independently 'fractionalized' and/or bifurcated, broken apart into incomplete sub-groupings by some intervening material. Anyway, their notations are sufficiently graphic, and self-explanatory.

Grace-note groups all lie 'outside time' – locally independent of the time-space paradigm and other metrical/durational schemata. In general, they should be played quite rapidly or even "as fast as possible", although tenuto markings and various pauses are frequently used to suggest a more leisurely or irregular approach. Indeed, nuances in horizontal spacing amongst grace-notes propound a correspondingly sophisticated rhythmic interpretation that is, notwithstanding, left to the executant to some extent. Furthermore, despite their autonomous unfurling, grace-notes ought not to be thought of as mere 'ornaments', of secondary architectonic status, to the 'main notes': in **Dimensiones Paradisi**, *all* sonorities are equally important, belonging as it were to a 'Heavenly democracy'!

"*mercurial: 'as fast as possible'!*" – thenceforth abbreviated to "*mercurial...*" (in conjunction with a grace-note group) – constitutes a 'local tempo' which will always be utterly dependent upon certain factors such as pitch-contour, dynamic levels, fingerings and other technical exigencies, the mandatory attainment of clarity (i.e. that each sonority still must be *clearly discernible*: i.e. 'as fast as *articulately* possible!'), your overall flautistic virtuosity, how well you feel at the time, room acoustics, etc. "*mercurial...*" is, therefore, 'micro-contextual' and potentially forever variable – a precise directive without a predictable outcome! So, for this mode of performance, do not necessarily strive for evenness of speed: rather, rhythmic fluidity, naturalness and – where applicable – asymmetry should be your goals. (Think of the continuity of a fast-flowing river, with its ceaselessly evolving inner turbulences, eddies, whirlpools, and its more sedate currents.)

Finally, a serious caveat: altering designated fingering-configurations simply to render any passage 'more technically facile' is absolutely discouraged! Among "*mercurial...*" grace-note groups in particular, where unevenness may well be premeditated and favourable, the local chronomorphology on the whole stems directly from the alto flute's fingering-mechanism (the Boehm system) itself!

PAUSES

Unless otherwise indicated, precise durational details of pauses are left to the interpretation of the performer. The following symbology is employed:

- ◌ is a *comma*, denoting a *slight caesura* – not necessarily for the purpose of taking a breath;
- Λ is a *peaked fermata*, denoting a *relatively brief pause* (increasing a duration by no more than a factor of 2);

~ ii ~

◻ is a *squared fermata*, denoting a *relatively lengthy pause* (increasing a duration by at least a factor of 2.5). Whenever this symbol appears within the stave, in bold, the duration of the pause is always specified above the stave (in seconds).

BREATHING

✓ denotes a *breathing space*. Inhalation should be carried out wherever indicated as furtively and as efficiently as possible. It is expected that such indrawing of air will intrude somewhat into the rhythmic design, so that pauses for breath are bound to arise: these should be kept as brief as possible!

Although *circular breathing* is nowhere requested in **Dimensiones Paradisi**, its employment is allowed – but only whenever it is felt to be *absolutely necessary*: for flautists with small lung-capacities who have perfected this technique, circular breathing within the longer β sections might be deemed applicable, for instance.

ADJUSTMENT OF TEMPI

Should slightly lower tempi be preferred in **Dimensiones Paradisi**, then *all* tempi – as well as the time-space ‘meta-beats’ of all 25 sections α , β , γ , and H (as defined by their periodic ictuses, drawn every 40mm \approx 1 second = metronome 60) – *must* be lowered, proportionately, by the same factor ... lest the work’s architecture be distorted. (Likewise, the duration of each pause lasting a given number of seconds will need to be multiplied accordingly.) Do be aware, moreover, that slowing down the pace beyond a certain threshold could necessitate resorting to *circular breathing* in certain passages.

DYNAMIC INDICATIONS

The following gradient of dynamics is employed throughout **Dimensiones Paradisi**:

ppppp pppp ppp pp p mp mf f ff fff ffff

In addition:

○ represents the initial emergence from, or final vanishing into, *inaudibility*;

p poss. and *f* poss. are abbreviations for ‘as soft as possible’ and ‘as loud as possible’, respectively;

within those passages denoted “pale, lunar”, most multiphonics are given a *dynamic range*, including the minimum and maximum dynamic levels: e.g. *p↔mf*.

ARTICULATION

All articulations – *legato*, *tenuto*, *mezzo-staccato*, *staccato*, *staccatissimo*, *accent* (>), *sforzando* (^) etc. – should be duly observed. For the purposes of this composition, a *tenuto* marking (–) is simply to be understood as a direction to sustain a sonority for its *full duration* (or even slightly longer): *tenuto* carries no implication of *any* additional accentuation whatsoever, unless otherwise indicated. The following special articulations are also utilized in **Dimensiones Paradisi**:

Ⓣ denotes an *aspirated attack*, using the phoneme ‘h’ (as in “hamster”): the sonority is to be rendered *without any tonguing whatsoever*. When this articulation is

underpinned by an accent, the aspiration is intensified so that it becomes a *diaphragm thrust*.

Ⓟ denotes an *exaggerated plosive attack*. Attack the sonority, explosively, with an over-emphasized ‘t’ (as in “tiger”) or ‘p’ (as in “pig”), in order to create conspicuous transient noise/overblowing. Local dynamic indications provide basic guidelines as to the strength of the attack.

k denotes a *velar plosive attack*, using the phoneme ‘k’ (as in “kitten”).

⤴ denotes ‘*pizzicato*’, using either the tongue or the lips (as indicated) – an exaggerated plosive sonority produced entirely by the articulators, without *any* pulmonary action whatsoever! A quite resonant popping sound should result.

• denotes a *tongue-ram* (unvoiced). Whilst fingering the (first-register) note designated by the circular notehead, violently drive the tongue right into the alto flute’s embouchure-hole, accompanying this forceful articulation with considerable pulmonary/diaphragmatic support. An extremely resonant reverse-envelope ‘thud’ should ensue, possessing a discernible pitch – indicated by the regular notehead – approximately a major seventh below the fingering’s normal first-register pitch.

⤴ denotes *fluttersong*, a trilling of the tongue-tip against the alveolar ridge, or alternatively, a trilling of the back of the tongue against the uvula (soft palate) – as in gargling. Either type of fluttersong is acceptable within **Dimensiones Paradisi**: the type and intensity of the fluttersong to be employed at each occurrence is left to the discretion of the flautist.

⤴ denotes a *tongue-tremolo*. Articulate, *as quickly and as evenly as possible*, the (double-tonguing) phonemes ‘[d]idl(d)idl(d)idl...’ – as in “middle” – or the much more common (double-tonguing) pattern ‘[t]eketeke...’ (‘[d]egedege...’). The type and intensity of the tongue-tremolo to be employed at each occurrence is left to the discretion of the flautist.

With both *fluttersong* and *tongue-tremoli*, an arrow (→) adjacent to the above symbols calls for the ‘fading in’ and/or ‘fading out’ of these iterative articulations as *smoothly as possible*, rather than merely switching suddenly from one articulatory mode to another. Note too that in the β sections (only), such articulations evolve *independently of all other performance parameters*: their autonomous transformations are portrayed upon the noteheadless stems beneath the stave, where the prevailing articulation-type is to be maintained until the next instruction overrides it.

EMBOUCHURE ADJUSTMENTS

⤴ denotes a *rolling out* of the alto flute’s lip-plate (e.g. to correct some flatness of intonation).

⤵ denotes a *rolling in* of the alto flute’s lip-plate (e.g. to correct some sharpness of intonation).

ALTO FLUTE FINGERINGS

Every fingering-indication provided within the score of **Dimensiones Paradisi** that supplies the *notated pitch(es) accurately over the given duration* is to be strictly adhered to: any modifications of such fingerings are forbidden! But whenever a fingering yields an unacceptably inaccurate outcome, or is acoustically untenable on a particular instrument,

then the performer is at liberty to alter that fingering – subject to the proviso that the resultant sonority matches, as closely as possible *in context*, the composer's original intention. If no such fingering exists, then just utilize the provided fingering: more accurate pitch might even be procured by rotating the lip-plate (i.e. rolling the alto flute in or out) accordingly.

Because intonational nuances and timbral heterogeneity are very much integral to the conception of **Dimensiones Paradisi**, playing this work on any of the recently developed specialist quartertone alto flutes is *expressly prohibited* whenever such a kaleidoscopic sound-world cannot be readily accessed! Verification of all alto flute fingering-resources used herein was carried out by Kathleen Gallagher on an Altus alto flute (possessing the standard Boehm mechanism).

The following symbology is employed in relation to fingering *tablature pictographs*:

- denotes a *switch* from one state to another (e.g. an open fingerhole is then closed);
- denotes an *ongoing interchange* that involves two or more fingerings (i.e. an oscillatory, cyclical, or random [abbreviation: *rand.*] trilling action);
- - - → denotes a *transition* from one state to another (i.e. a gradual key-depression or key-release).

HARMONICS

- denotes a *harmonic*. The fundamental pitch is specified by the non-mensural, broken (three-quarter) diamond notehead: utilize the standard (first-register) fingering for this pitch, which may be audible as a relatively faint 'undertone'. The pitch of the harmonic itself is notated in the usual way, as a regular notehead with a small circle above it. *All* harmonics throughout **Dimensiones Paradisi** are designated explicitly: hence, in the absence of any tablature pictograph, a note tied to a harmonic (and possessing the same [chromatic] pitch as it) is to be played with the *normal fingering* for that pitch.

QUARTERTONES AND MICROTONE SETS

Fingerings for *quartertones* (i.e. 24-tone equal temperament) and for *microtone sets* found in **Dimensiones Paradisi** are appended within a prefatory table – to aid the flautist in checking their intonational accuracy, to assist in the familiarization process, and for general practice purposes. Such quartertone/microtone fingerings render sonorities that are variously coloured; these lovely timbral variegations were very much in mind during the writing of this piece. Their melancholy, muted, or rather plaintive quality is characteristic: please do not attempt to 'fake' more normal timbres for them!

Quartertone fingerings (generally omitted from the score itself) were chosen for their ability to furnish precisely tempered intonation comprising *equally spaced intervals*; the numerous sets of smaller microtones, by contrast, are deliberately *uneven* – a quite natural consequence of the alto flute's physiology. Slight tuning disparities arising from any of these fingerings may, however, be eliminated by *rolling in* or *rolling out* the alto flute's lip-plate.

The following symbology for *quartertone accidentals* is employed:

♯ and ♭ denote a *quartertone above* ♮, and a *quartertone below* ♮, respectively.

~ v ~

The notation of the *microtone sets* is purely relativistic: half-arrowheads, whole arrowheads, and (in the β sections only) 'blobs' upon accidentals respectively denote increasing – but non-specific – degrees of intonational deviation, of somewhat less than a quartertone, in the given direction. (The appended fingering-charts should clarify this notational protocol.)

MULTIPHONICS

All ('inharmonic') multiphonics employed in **Dimensiones Paradisi** are appended within a prefatory table. Their notation is necessarily incomplete: sidebands, such as 'difference tones', have been excluded. Nonetheless, the pitches of the highest and lowest component tones are carefully notated (correlating, wherever possible, with the intonations assigned to the microtone sets), and should therefore be fairly accurate in performance; this can be ascertained by playing through the abovementioned table. If, however, any *infinitesimal* pitch-discrepancies do occur in playing these multiphonics on your instrument, then they can be ignored!

The *steadiness* of (unstable) multiphonics – in performing, for example, many of the α passages – is not a high priority: unless otherwise indicated, a reasonable degree of 'inner fluctuation' is quite acceptable. Similarly, it is my intention that certain *slow-speaking* multiphonics might be heard only incipiently, whenever their specified durations are insufficient to fully secure and stabilize all of their constituent pitches simultaneously.

OCTAVE MULTIPHONICS / SPLIT OCTAVES

- ◻ denotes an *octave multiphonic* or a 'split octave' (characterized notationally by a small open square in place of the single harmonic's small circle). Using the normal fingering for the lowest (first-register) note of the notated octave, darken its tone by aiming the breath exactly halfway between the air-stream positions for each of the two pitches, thereby sounding both simultaneously, as part of a *rich, murky timbre* wherein the second partial is almost as strong as the fundamental. (Note that a clear distinction between 'split octave' and 'octave multiphonic' remains elusive here; this sonority belongs somewhere within that acoustical continuum between *timbre* and *harmony*, so that its most appropriate categorization will be context-dependent.)

MULTIPLE TRILLS AND TRILL FREQUENCY

Multiple trills involve the (rapid) interplay of three or more sonorities: the initial sonority is written as the 'main note'; the other sonorities are then notated in parentheses. Tablature pictographs are always provided above the stave.

The multiple trills' elements in the β sections and in section G are to be played in *cyclical order* (i.e. first element → second → third → first → second → ...) – although an infusion of some random re-ordering is by no means undesirable. On the other hand, the sequences of microtones within the multiple trills of sections α₁ and α₂ are to be played in a *truly random fashion*! (See the footnote at the bottom of p.3 within the score.)

Note that for *all* trills – normal or multiple – throughout **Dimensiones Paradisi**, the conventional triangular waveform contour suggests micro-details of each trill's frequency, which may be static or evolving.


~ vi ~


OVERBLOWING OF (MULTIPLE) TRILLS

In sections β_1 , β_2 , β_6 and β_7 , (multiple) trills are required to be *overblown*, in legato (unless another articulation is indicated); this overblowing should intensify and abate in direct correspondence with the lengths and shapes of the *bold triangular contours* superposed straight on top of the extended time-space beams. Such overblowing – which develops quite independently of any trill-fingering changes! – must reach the third register *at the very least*: although precise details are left to the player, maximum variety of effect ought to be strived for.

VIBRATO

If used at all, vibrato – in particular, air-column vibrato – is to be employed *very sparingly and tastefully*, with discretion. (For instance, additional air-column vibrato is probably best avoided in the α and γ sections.) The following vibrato-types, however, are called for at specific points in the music:


A  denotes an *air-column vibrato*. The sinusoidal waveform contour suggests micro-details of the air-column vibrato's frequency and amplitude (intensity), either of which may be static or evolving.

K  denotes a *key-vibrato*. Its fingering and trilling action is specified by the tablature pictograph above the stave – unless harmonics are involved. The triangular waveform contour suggests micro-details of the key-vibrato's frequency, which may be static or evolving.

All (non-harmonic) key-vibrati employed in **Dimensiones Paradisi** are appended within a prefatory table, the rationale for selecting each key-vibrato's fingering being that it achieve maximal timbral alteration with a minimal pitch-shift, wherever possible. (I have therefore made no attempt to correlate these fingerings with those of the microtone sets.)

KEY-SLAPS

× denotes a *key-slap*: forcefully depress the relevant key(s) while initiating and/or sustaining the given sonority, thereby assimilating an audible resonant 'pop' into its timbre. Whenever a tablature pictograph is provided as well, the keys to be 'slapped down' are clearly marked thereabouts with an ×; in other contexts (e.g. *harmonics*) the finger-action is already predetermined, so that further instructions are unnecessary. (With key-slapped *trills* and *key-vibrati*, the × also appears next to the triangular waveform contour.)

 illustrates another notation, used solely on p.1, for detailing a *key-slap*. While the lowest C# is fingered (as shown by the broken [three-quarter] diamond notehead), the x-notehead affixed to the stem signals by name which key is to be snapped shut. Only five keys are involved, singly, in this activity: the A key (left-hand middle finger); the G key (left-hand ring finger); the F key (right-hand index finger); the E key (right-hand middle finger), and the D key (right-hand ring finger). 'Slapping' different keys down both facilitates rapidity of execution and maximizes timbral diversity. Note moreover that whenever the C#'s notehead is a *broken three-quarter diamond*, *no air is to be blown at all*: thus, each key-slap's percussive timbre resonates alone (in which case the quasi dynamic indication × --- is deployed underneath the stave).

"NO AIR! TUBE RESONANCE AND MECHANISM NOISE ONLY!"

This opening gesture is an important cognitive/structural anchor – a kind of 'ritornello' – in **Dimensiones Paradisi**. Although the alto flute is held in its normal embouchure-position, there is to be *no air blown at all*! The sound is generated purely through *finger-activity*: whilst the right-hand keys are gradually depressed in succession (as shown by the tablature pictographs above the stave and by the *glissando* between broken-diamond noteheads), the left-hand thumb (B), C, and G# keys are trilled *randomly*, creating rattly mechanism noises and hollow, pitched resonances within the alto flute's tube. The quasi dynamic indication (○ → × → ○) under the stave signifies a subtle introduction, thence withdrawal, of deliberate forceful *key-slaps* (with the thumb and C keys). Between each occurrence of this type of passage, aim for *maximum timbral variety*: for example, the pacing of right-hand key-depression and the profile of left-hand random trill-speeds should be noticeably different upon each reappearance of this gesture.

BREATHY TONE

◇ A closed-diamond notehead (which appears both in the stave and above it) indicates *breathy execution* – where the tone-quality has been infused with *maximum breathiness* through projecting a relatively unfocussed air-stream across the embouchure-hole. First-register tones played in this way should all sound as distinctly pitched, 'open aeolian' airy tube-resonances.

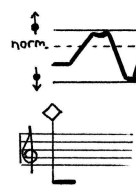
◆ A half-blacked-in closed-diamond notehead (which appears both in the stave and above it) indicates a degree of *breathiness midway between normal playing and maximum breathiness*.

◆ A fully blacked-in closed diamond (which only appears above the stave) indicates *normal timbre*, without any additional breathiness whatsoever.

A *continuous transformation from one state of breathiness to another* is depicted above the stave by an arrow (→) between closed diamonds.

Note that for *breathy tones pitched above the first register*, what is required is a somewhat diffuse to maximally breathy timbre, perhaps overlying some 'residual tones' (undertones) of various degrees of prominence. Where such breathy tones are *harmonics*, their fundamental pitches should be more conspicuous than usual, as fairly strong residual (under)tones.

RANDOM AIR-NOISE

 A large closed-diamond notehead lying above the stave indicates *random air-noise*, produced by an unfocussed air-stream blown across, or directly into, the embouchure-hole whilst carrying out random finger-movement at a random (primarily rapid) rate. Pitch-content is irrelevant here! Whenever practicable, through raising the angle of the air-stream and slightly increasing lip-tension, allow *random whistle tones* to project as well. It is desirable at all times, however, to *minimize key/mechanism-noise*, unless otherwise specified.

The graphic above the diamond notehead pertains to *lip-plate angle*: its thin top line denotes a *rolling-out* of the alto flute's lip-plate *as far as possible*; its thin bottom line denotes *rolling-in* the alto flute's lip-plate so that *both lips completely enclose the embouchure-hole*; the dashed line after "norm."

denotes the normal embouchure-position. The thick black contour drawn between the two extremes signifies an *ongoing transformation of lip-plate angle*, a procedure which impacts significantly upon the air-noise pitch and timbre.

Random air-noise on the alto flute consumes a great deal of air. In order to promote timbral variety and to decrease air-consumption, the flautist may consider occasionally employing *sustained sibilant phonemes* ('s' [as in "sloth"]; 'sh' [as in "shrew"]) and *sustained fricative phonemes* ('f' [as in "ferret"]; 'th' [as in "thornbill"]). For identical reasons, and simply to replenish the lungs, the flautist may also at times *noisily inhale through the alto flute's tube*, when the lip-plate is rolled all the way in.

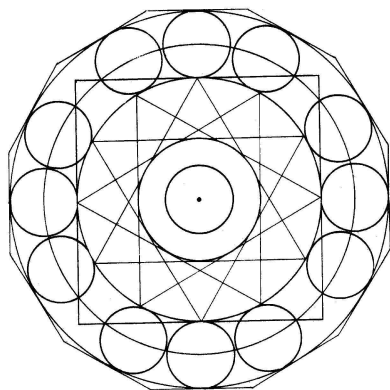
Between each appearance of random air-noise, please aim for maximum timbral diversity.

RANDOM WHISTLETONES

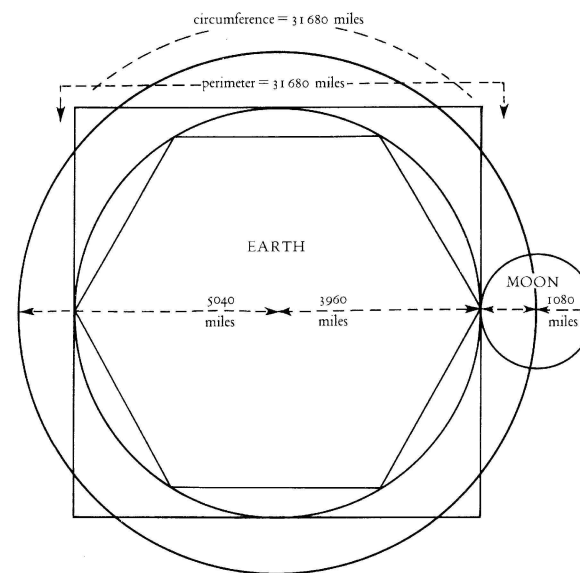
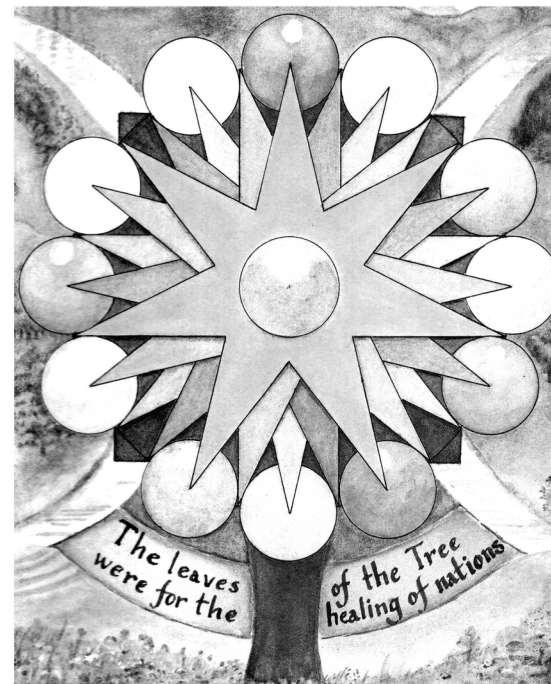


denotes *random whistletones*. Commencing in most cases with an aspirated attack, but always blowing as gently as possible across the embouchure-hole through a very narrow lip-aperture, vary the air-stream angle unpredictably in order to allow random sweeps and fluctuations of *pure* whistle tone pitches to materialize, roughly in accord with the dotted graphic contour. To assist in this irregularness of whistle tone pitch, randomly metamorphose their indeterminate fingering-configurations at any moment throughout the event as well – although such randomized finger-movement should not be particularly swift. As with random air-noise, please strive to *minimize key/mechanism-noise* (unless otherwise indicated) – so as to preserve the unsullied purity of the whistle tone sounds – while aiming nevertheless for maximum diversity between each occurrence of the whistletones.

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~ ix ~



~ x ~

KEY VIBRATI

roll out to correct flatness.

The first staff contains 18 notes with various vibrati markings (dots and lines) above them. The second staff contains 8 notes with similar markings. The notes are written on a treble clef staff with a key signature of one flat (Bb).

QUARTERTONES

roll in to correct sharpness.

roll in to correct sharpness.

roll in to correct sharpness.

muted

muted, gentle

awkward

muted...

husky...

muted, gentle

The first staff contains 18 notes with quarter tones indicated by a flat symbol (b) above the note. The second staff contains 12 notes with quarter tones indicated by a flat symbol (b) above the note. The notes are written on a treble clef staff with a key signature of one flat (Bb). Performance instructions like 'muted', 'muted, gentle', 'awkward', 'muted...', 'husky...', and 'roll in to correct sharpness' are written below the notes.

MICROTONE SETS

section: γ_7

section: E'

section: $(\gamma_2, 0')$

MULTIPHONICS

section: 8.

dynamic range. \rightarrow mf mf p-mf mf pp-p p-mf pp-mp p-mf pp-mp p-mf mf pp-mp p-mf mp-mf p-mf p-mp p-mf pppp! pp-mp

additional articulations. \rightarrow \equiv \angle $\equiv \angle$ \angle \angle \equiv $\equiv \angle$ $\equiv \angle$ \angle \angle

Dimensiones Paradisi

Incantatory: "a coalescence of interstellar matter..." = 1 second.

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β₁

rand. ... from airiness, gradually coming into focus... as fast as possible...

no air! tube resonance and mechanism noise only!

norm

tr

ppppp mp ff! p f fff f mp

rit...

a heartbeat... receding...

pochiss. pochiss. pp

key-slap only... (accelerate...) (slightly faltering...)

blow...

Crystalline, luminous/numinous, quicksilver...

A

7:5^F 13:14^F 4:3^F 5:7^F 7:6^F

pppp! steady, unwavering... p ↔ mf pp ↔ p p ↔ mp mf: pppp! echo: steady...

f mp-ppp mf f mf p

† with variation in breath-pressure and fluttertonguing/tongue-tremolo intensity, allow these multiphonics to break up and oscillate chaotically between, and through, their component tones.

Handwritten musical score, first system. The staff contains a melodic line with various accidentals and a wavy line above it. Above the staff, there are vertical sequences of dots and a box labeled β_5 . Below the staff, there are dynamic markings: (p), f, poco, p, pp, poco, mp, f, p, pp. There are also tempo markings: accel..., as fast as possible..., and a box labeled β_5 . The system ends with a double bar line.

Handwritten musical score, second system. The staff contains a melodic line with various accidentals and a wavy line above it. Above the staff, there are vertical sequences of dots and a box labeled β_5 . Below the staff, there are dynamic markings: p, pp, p, poco, p, pp. There are also tempo markings: accel..., as fast as possible..., and a box labeled β_5 . The system ends with a double bar line.

Handwritten musical score, third system. The staff contains a melodic line with various accidentals and a wavy line above it. Above the staff, there are vertical sequences of dots and a box labeled β_5 . Below the staff, there are dynamic markings: (ppp), f!, mp, mf, p, pp, pp, p, pp, p, mp: ppp, p < mf > p. There are also tempo markings: accel..., (norm.), and a box labeled β_5 . The system ends with a double bar line.

Handwritten musical score, fourth system. The staff contains a melodic line with various accidentals and a wavy line above it. Above the staff, there are vertical sequences of dots and a box labeled β_5 . Below the staff, there are dynamic markings: (p), mp, mf, f, mp: f non dim..., mp, p, poco, pp, f. There are also tempo markings: 6:7 F, and a box labeled β_5 . The system ends with a double bar line.

Handwritten musical score for a single staff. It begins with a treble clef and a key signature of one sharp (F#). The notation includes various accidentals (sharps, flats, naturals) and dynamic markings: *ff*, *mf*, *p:mp*, *sfz*, *pp*, *p*, and *ppppp*. There are also performance instructions like *poco* and *rit...*. Above the staff, there are diagrams: a trapezoid labeled "norm." with a dashed line, and a box labeled "2". The score ends with the instruction "Be still, statue-like..."

Like freshly cut steel: extremely pure, brittle, bright, innocent
... glossolalia! (In one breath...)

Handwritten musical score for a single staff. It features a treble clef and a key signature of one sharp (F#). The notation includes various accidentals and dynamic markings: *ppppp*, *ppp*, *mp*, and *non dim, non cresc. - absolutely steady!...* Above the staff, there are diagrams: a trapezoid labeled "rand." with a dashed line, and a box labeled "2". The score ends with the instruction "Be still, statue-like..."

Handwritten musical score for a single staff. It features a treble clef and a key signature of one sharp (F#). The notation includes various accidentals and dynamic markings: *(mp...)*, *ppp*, and *ppppp*. Above the staff, there are diagrams: a trapezoid labeled "rand." with a dashed line, and a box labeled "2". The score ends with the instruction "Be still, statue-like..."

Handwritten musical score for a single staff. It features a treble clef and a key signature of one sharp (F#). The notation includes various accidentals and dynamic markings: *(mp...)*, *ppp*, *ppppp*, and *(f)*. Above the staff, there are diagrams: a trapezoid labeled "rand." with a dashed line, and a box labeled "2". The score ends with the instruction "Be still, statue-like..."

† a complex random trilling action involving the D and/or D[#] trill-keys (speed: 'fast' to 'as fast as possible'). The presence of the four pitches in each trill should be statistically equal, each pitch appearing approximately 25% of the time, without any bias towards the initial pitch.

Handwritten musical score for a string quartet. The score is written on a single system with four staves. The top staff contains a complex melodic line with many notes, some of which are beamed together. Above this staff, there are several vertical lines of notes, possibly representing a different instrument or a specific technique. The bottom staff contains a rhythmic accompaniment with a 'legatissimo' marking. The score includes various dynamics such as *p*, *mp*, *pp*, *f*, *ppp*, *pppp*, and *subito*. There are also markings for *poco* and *legatissimo*. The score is written in a single system with a key signature of one sharp (F#) and a time signature of 4/4. The notation is highly detailed, with many slurs, ties, and other musical symbols.

Handwritten musical score for "Lullaby" by Debussy. The score is written for piano and voice. The piano part features a complex rhythmic pattern with many beamed notes and rests, and is marked with dynamics such as *ppp non cresc...*, *mp*, *pp*, *p*, and *mp*. The vocal line is more melodic, with some grace notes and a final phrase marked *poco*. The score includes performance instructions like *rit...* and *11.8. m*.

Handwritten musical score for "The Moon" by John Cage. The score is written on a single staff with a treble clef. It includes various musical notations such as notes, rests, and dynamic markings. The dynamics range from *pp* (pianissimo) to *ff* (fortissimo). There are also markings for *f* (forte), *mp* (mezzo-piano), *mf* (mezzo-forte), and *p* (piano). The score is divided into sections by brackets and includes a graphic notation section with a wavy line and the word "rit...".

Handwritten notes and markings include:

- f*, *mp*, *pp*, *mf*, *mp*, *f:pp-f*, *ff*, *p*, *ff*
- 7:8 *f*, 5:4 *f*, 7:8 *f*, 4:3
- rit...
- pale, lunar: one fluid gesture.†
- † see the footnote on p.1.

Handwritten musical score for the piano part of 'The Wind' by Gustav Mahler. The score is written on a grand staff (treble and bass clefs) with a key signature of one sharp (F#) and a 4/4 time signature. The tempo is marked 'mod.' (moderato). The score includes various dynamics such as *pp* (pianissimo), *mp* (mezzo-piano), *mf* (mezzo-forte), and *f* (forte). There are also markings for articulation, including accents and slurs. The score is divided into measures, with some measures containing multiple notes and rests. The score ends with a double bar line and a repeat sign.

Musical score for "The Rose Tree" (Der Rosenstock) by Franz Schubert, Op. 99, No. 3. The score is for voice and piano. It features a key signature of one flat (B-flat) and a common time signature (C). The music is in 3/4 time. The score includes a vocal line and a piano accompaniment. The piano part features a prominent bass line with many triplets and a more active upper line. The vocal line is a simple melody. The score is marked with various dynamics including *ff*, *mf*, *mp*, *p*, and *f*, and includes performance instructions like "accel..." and "poco". The score ends with a double bar line and repeat signs.

(as fast as possible...)

pppp p ff:mp pp p f

6/11 5:4

mp-f p mf < > ppp p pp mp > pp < p mf p pppp

3:2 5:4 3:2

mercurial: as fast as possible!

mp: pp f mp mf > mp: f < > f ff ppp p mf pp mp mf < > pp

2/7 2/3 5:4 5:4 7/6

mp f ppp p mp f p mf pp p < mp

4/3 5:4 5:4 1/5 3:2 7:5 13:14

pale, lunar: one fluid gesture. †

† see the footnote on p.1.

Handwritten musical score for a single staff, featuring complex rhythmic notation and dynamic markings. Above the staff, there are two diagrams showing amplitude envelopes with labels "norm" and "rand.". The score includes the following elements:

- Dynamic markings:** $pp \leftrightarrow mp$, $pppp!$ steady..., $p \leftrightarrow mf$, $ppppp$, mp , $ff!$, pp .
- Rhythmic markings:** $7:5$, $13:14$, $4:3$.
- Text annotations:** "Be still, statue-like...", "no air!", "tube resonance and mechanism noise only!", "...from airiness, gradually coming into focus..."
- Other markings:** α_5 , \oplus , \otimes , \circ , \times .

Handwritten musical score for a single staff, continuing the piece. It includes the following elements:

- Dynamic markings:** mp , fff , pp , $ppppp$, ff , f .
- Text annotations:** "accel...", "as fast as possible...", "rit...", "Be still, statue-like..."
- Other markings:** \circ , \times , \oplus , \otimes , \square , \square_D , \square_{P_7} , norm. , K , K .

Handwritten musical score for a single staff, featuring complex rhythmic notation and dynamic markings. It includes the following elements:

- Dynamic markings:** mf , p , fff , pp , mf , f , p , mp , f , mf , ff , $ppp!$.
- Text annotations:** "as fast as possible...", "riten..."
- Other markings:** \circ , \times , \oplus , \otimes , \square , \square_D , \square_{P_7} , norm. , K , K .

Handwritten musical score for a single staff, featuring complex rhythmic notation and dynamic markings. It includes the following elements:

- Dynamic markings:** f , p , $f:p$, $ff!$, ppp , p , $f:p$, pp , mf , pp , p , $poco$, $f:pp$, ff , p , $poco$.
- Text annotations:** "poco", "poco"
- Other markings:** \circ , \times , \oplus , \otimes , \square , \square_D , \square_{P_7} , norm. , K , K .

ppp! f:ppp f:mp pp f ff:mp ppp <mp pp mf:ppp mp mf:pp

q tempo. echo: mercurial, 'as fast as possible'! mf f p mf pp mf p mf ff:pp mf f sfz p ff mp f p

trmm 3''' Be still, statue-like... no air! tube resonance and mechanism noise only! ...from airiness, gradually coming into focus...

norm. pppp! steady, unwavering... p mf ff!:ppppp

E ♩ = 109.

pale, lunar: one fluid gesture.[†]

Be still, statue-like...

5:3 F

13:8 F

mf: mp

pp ↔ mp

(accel...)

mf: mp

pp

f < ff

5:4 F

sffz

ppp: sfz: pp < p - mf

F 'omphalic'!

norm.

(echo)

E'

pale, lunar: one fluid gesture.[†]

mercurial...

13:8 F

ppppp

p ↔ mp

pp

ppp

ppp

pp

Be still, statue-like...

norm.

...from airiness, gradually coming into focus...

norm.

Be still...

p

mp

p

D' ♩ = 128.

as fast as possible...

5:4 F

f

mf < f

ff: mf

p

f

mp

rit...

mp

p

mp

f

ff

f

sfz

ff

ppp!

f

ff

poco

ff

poco

mp: sfz: f

p

ff

mp: sfz: f

p

mf

2

accel...

8

[†] see the footnote on p. 1.

Handwritten musical score for a single staff. The notation includes various notes, rests, and dynamic markings. Above the staff, there are vertical columns of dots and some circled symbols. Below the staff, there are dynamic markings and tempo indications.

Dynamic markings: $pp < mp$, $sfz: mf$, $(sfz) mf$, $p < mp$, mf , f , $ff!$, $poco$, ff , pp , $sfz!$, mp , $sfz: p$, f , $mercurial...$, ff , mf .

Handwritten musical score for a single staff. The notation includes various notes, rests, and dynamic markings. Above the staff, there are vertical columns of dots and some circled symbols. Below the staff, there are dynamic markings and tempo indications.

Dynamic markings: $echo: mercurial... (mf)$, $poco$, $mp: p$, $mp < mf$, mp , ff , f , p , mf , $poco$, ff , pp .

Other markings: $riten...$, $Be still, statue-like...$, $5:6$, $5:3$, $13:8$.

Handwritten musical score for a single staff. The notation includes various notes, rests, and dynamic markings. Above the staff, there are vertical columns of dots and some circled symbols. Below the staff, there are dynamic markings and tempo indications.

Dynamic markings: $no air!$, $tube resonance and mechanism noise only!$, $rand.$, $norm$, $... from airiness, gradually coming into focus.$, $ppppp...$, $p > pp$, $pppp!$, $steady, unwavering...$, $sfz > f$, $poco$.

Other markings: $[C'] = 89. mercurial... irregular, fluid...$, $riten...$.

Handwritten musical score for a single staff. The notation includes various notes, rests, and dynamic markings. Above the staff, there are vertical columns of dots and some circled symbols. Below the staff, there are dynamic markings and tempo indications.

Dynamic markings: ff , $poco$, $f < mp$, mf , $pp < mp!$, $f > p \leftrightarrow mf$, $pp \leftrightarrow p$, $13:12$, $7:5$, $4:3$, $p \leftrightarrow mf$, mf , $pp \leftrightarrow mp$, mp .

Other markings: $pale, lunar: one fluid gesture.$, \dagger see the footnote on p.1.

Handwritten musical score, first system. The staff contains a melodic line with various notes, rests, and accidentals. Above the staff, there are vertical sequences of dots and 'x' marks, some with arrows pointing to specific notes. Dynamic markings include *f*, *mf*, *ff*, *p*, *pp*, *mp*, *ff*, *p*, *pppp*, and *f*. Tempo markings include *poco*, *7:4*, *19:16*, *5:4*, and *3:2*. A phrase "mercurial..." is written above the staff towards the end. There are also some circled symbols like \oplus and \otimes .

Handwritten musical score, second system. The staff continues the melodic line. Above the staff, there are vertical sequences of dots and 'x' marks. Dynamic markings include *ff*, *p*, *sffz*, *f*, *pp*, *poco*, *f*, *ff*, *mf*, *p*, *mf*, *f*, *mp*, *ff*, *poco*, *p*, and *poco*. A phrase "rit..." is written above the staff. There are also some circled symbols like \oplus and \otimes .

Handwritten musical score, third system. The staff continues the melodic line. Above the staff, there are vertical sequences of dots and 'x' marks. Dynamic markings include *-(p)*, *mf*, *poco*, *mp*, *p*, *pp*, *f*, *mp*, *p*, *mf*, *mp*, *p*, *mf*, *mp*, *f*, *p*, *ff*, *mf*, *7:4*, *p*, *sffz*, *mp*, *p*, *7:4*, *3:2*, and *f*. A phrase "mercurial..." is written above the staff. There are also some circled symbols like \oplus and \otimes .

Handwritten musical score, fourth system. The staff continues the melodic line. Above the staff, there are vertical sequences of dots and 'x' marks. Dynamic markings include *f*, *ff*, *mp*, *pochiss.*, *mf*, *ff*, *pochiss.*, *p*, *ff*, *f*, *pp*, *p*, and *mf*. A phrase "mercurial..." is written above the staff. There are also some circled symbols like \oplus and \otimes .

6 as fast as possible...

ppp! mp fff mp pp:p f

p non dim... 17:12 F ... mp

accel... warm, muted...

ff fff:mf poco p

ff poco > ff

fff sfz:mf

mercurial... rit...

sfz ff poco fff mp f

ff poco < fff:ff > mf ff

7 as fast as possible...

f fff f:p poco pp mp mf p > poco pp

Be still...

Somewhat diffuse and woolly: distant, impersonal, detached...

... glossolalia! (In one breath...)

† see the footnote on p.3.

Handwritten musical notation on a staff. Above the staff, there are three vertical clusters of notes, each labeled "rand." with a bracket. A wavy line above the staff is labeled "random...". The staff itself has a treble clef and a key signature of one flat. It contains several measures of music, including a 15" mark, a "Be still, statue-like..." instruction, and a "ppppp..." instruction. A circled "1" is above a measure. A wavy line below the staff is labeled "ppp non dim., non cresc. - absolutely steady! ...".

Handwritten musical notation on a staff. Above the staff, there are five vertical clusters of notes, each labeled "rand." with a bracket. The staff has a treble clef and a key signature of one flat. It contains several measures of music, including a "rand." instruction, a circled "1", and a "ppppp..." instruction. A wavy line below the staff is labeled "ppppp...".

Handwritten musical notation on a staff. Above the staff, there are four vertical clusters of notes, each labeled "rand." with a bracket. The staff has a treble clef and a key signature of one flat. It contains several measures of music, including a circled "1", a "mercurial..." instruction, a "Be still, statue-like." instruction, a "f: pp!" instruction, a "mp" instruction, a "p" instruction, a "ff non dim..." instruction, a "poco" instruction, and a "ff non dim..." instruction. A wavy line below the staff is labeled "ppppp...".

Handwritten musical notation on a staff. Above the staff, there are four vertical clusters of notes, each labeled "rand." with a bracket. The staff has a treble clef and a key signature of one flat. It contains several measures of music, including a circled "1", a "K" instruction, a "d" instruction, a "b" instruction, a "f" instruction, a "ppp" instruction, and a "ppppp..." instruction. A wavy line below the staff is labeled "ppppp...".

[X₃] **[P₂]**

mf < ff mp < mf: p poco mp > p ff! sfz: f

5" (✓) Be still, statue-like...

as fast as possible...

mf ppp fff p mp pp

rit... accel... as fast as possible...

fff f pp! ff p fff > ff non dim... (ff...)

mercurial... (✓)

mercurial... accel... 5:4 F 3/4! mf ff poco poco ff non dim...

mercurial... A wavy line d=

fff non dim...

mercurial... 7:5 F mp mf poco poco ff

Handwritten musical score for a single melodic line, featuring various musical notations, dynamics, and performance instructions.

Section 1 (Top):

- Starts with a treble clef and a key signature of one flat (B-flat).
- Initial dynamics: *fff* — *sffz*: *ppp!* — *f* *poco* — *f* *poss!* *non dim...*
- Performance instructions: *accel...*, *as fast as possible...*, *quicksilver! (legatissimo poss.)*, *pale, lunar: one fluid gesture.†*
- Tempo/rhythm markings: $\frac{4}{3}$, $\frac{5}{3}$, $\frac{4}{3}$, $\frac{13}{14}$, $\frac{7}{5}$.

Section 2 (Middle):

- Continues the melodic line with various dynamics: *mf*, *pp*, *mp*, *mf*, *pppp!*, *echo: steady, unwavering.*, *pp*, *mp*, *mf*, *p* *poss.* *non cresc!*
- Performance instruction: *distant, yet clearly articulated: an echo of "quicksilver!"*

Section 3 (Bottom):

- Marked with a circled 'G' and a tempo marking: $\text{♩} = 87.5$.
- Dynamics: *(p poss...)*, *pp*, *f* *poss!*, *f*, *poco*, *p*, *pppp*, *sfz*: *pp*, *ffff*, *f* *poss!* *pure!*
- Performance instructions: *warm...*, *as fast as possible...*, *"Music of the Spheres": bursting upwards, through crystal orbits...*, *do not pause!*, *highest possible pitch*, *sustain the whistle tones until all breath is depleted...*, *echo.*, *Be still, statue-like...*, *cease finger activity...*
- Tempo/rhythm markings: $\frac{3}{2}$, $\frac{4}{3}$, $\frac{13}{14}$, $\frac{7}{5}$, $\frac{4}{3}$, $\frac{13}{14}$, $\frac{7}{5}$.

Section 4 (Bottom Right):

- Marked with a circled 'H'.
- Performance instruction: *Relax!*
- Final instruction: **FINE.**
- Duration: *c. 10'*

† treat this accelerating group of grace-notes as a single spectrally evolving envelope; yet allow each harmonic to be established individually. Then without any caesura whatsoever, employ the strongest possible attack to articulate the high D^H ; fully sustain this tone (with maximal purity!), merging it as smoothly as possible into random air-noise.